VITEC
VIDEO INNOVATIONS

FOCUS

FS-H60 / FS-H70 Portable Recorder

User Manual

May 2015
Rev 1.2

LEGAL NOTICES

LEGAL

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SERIAL NUMBER

The serial number for this equipment is located on the base of the unit. Please record this serial number and keep it in a secure area.

REGULATIONS AND SAFETY

FS-H70 and FS-H60 comply with the following standards and country regulations:

USA

FCC Part 15 Class A

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

EUROPEAN UNION

EN 55024
EN 61000-3-2 Class A & EN 61000-3-3
EN 55022 Class A

WEEE

RoHS 2

AUSTRALIA AND NEW ZEALAND

AS/NZS CISPR 22 Class A

JAPAN

VCCI Class A

この装置は，クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI－A

CANADA

ICES-003 Class A

REGULATORY COMPLIANCE RELATED TO THE VITEC USB WI-FI ADAPTER

FEDERAL COMMUNICATION COMMISSION INTERFERENCE STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

* Reorient or relocate the receiving antenna.

* Increase the separation between the equipment and receiver.

* Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

* Consult the dealer or an experienced radio/TV technician for help.

REGULATION INFORMATION

The WLAN 11n USB Client Adapter must be installed and used in strict accordance with the manufacturer's instructions. This device complies with the following radio frequency and safety standards. This device complies with Part 15 of the FCC Rules for radia frequency and safety standards. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference.

(2) This device must accept any interference received, including interference that may cause undesired operation.

FCC RF Radiation Exposure Statement:

This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment.

Your device contains a low power transmitter. When device is transmitted it sends out Radio Frequency (RF) signal. Use only with supplied antenna. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

France - 2.4GHz for Metropolitan France:

In all Metropolitan departments, wireless LAN frequencies can be used under the following conditions, either for public or private use:

· Indoor use: maximum power (EIRP*) of 100 mW for the entire 2400-2483.5 MHz frequency band

· Outdoor use: maximum power (EIRP*) of 100 mW for the 2400-2454 MHz band and with maximum power (EIRP*) of 10 mW for the 2454-2483 MHz band

DOCUMENTATION

Read, Retain, and Follow Instructions

All the safety and operating instructions should be read before the product is operated.

1. Retain Documentation

Place documentation in a secure place for future reference on operating and safety instructions.

2. Follow All Operating and Safety Instructions

3. Pay Attention to All Warnings.

Warnings are provided to protect the operator, the equipment, and content.

PRECAUTIONS

Do Not Expose to Moisture

Do not use this product near water or in an environment where it is exposed to dampness or there is the possibility of it getting wet.

Do Not Remove Cover

There are No User Serviceable Parts inside this unit. Servicing should be done by qualified service personnel.

Operating Environment

Avoid moisture, dust, extreme heat or cold.

Power Sources

Use only the AC-DC power source provided with the unit.

Use only Lithium Batteries provided with the unit or sold as an accessory by Focus.

Special care for Lithium battery use

Lithium batteries can explode, leak or cause burns if not handled appropriately.

Please observe the following rules of thumb:

- Use only VITEC BATTERY PACK P/N 12286
- Use only FS-H60 or FS-H70 unit to charge batteries
- Do not short battery or reverse polarity

- Do not open batteries
- Do not dispose in fire
- Do not heat above 60°C (140°F)
- Do not expose to water

ACCESSORIES AND REPLACEMENT PARTS

Use only attachments and accessories recommended by VITEC.
Unauthorized substitution of parts can result in loss of warranty.

LEGAL II

CONTACTING VITEC III

REGULATIONS AND SAFETY IV

INTRODUCTION 1

1. PHYSICAL DESCRIPTION 2

1.1 Front View - Controls 2

1.2 Top View - FS-H70 Connectors 2

1.3 Top View - FS-H60 Connectors 3

1.4 Bottom View – Media and Battery 3

QUICK START 4

1. POWERING FS-H70 / FS-H60 4

2. SETTING UP FOR FIRST USE 4

3. FS-H70 / FS-H60 CONTROLS AND OPERATIONS 5

3.1 Status information 5

3.2 Additional status information 5

3.3 Setting up the recording profile 6

3.4 Take a Snapshot 7

3.5 Start a record 7

3.6 Pause a recording 8

3.7 Offload your video and pictures 8

3.8 First connection to the web interface 8

CONFIGURING FS-H70 / FS-H60 10

1.1 File Settings 11

1.2 Pre REC 11

1.3 Record Control 12

1.4 Timecode 12

1.5 TC Super (only on FS-H70) 13

1.6 Video Output (only for FS-H60) 13

1.7 Backlight 13

1.8 Date and Time 14

1.9 Network Settings 14

1.10 Preview 15

1.11 Format SD Card 15

1.12 Firmware 15

FS-H70 / FS-H60 WEB INTERFACE 17

1. GETTING STARTED **17**
1.1 Configuration requirement 17
1.2 First connection to FS-H70 / FS-H60 web interface 17
2. STATUS HEADER **18**
2.1 Input Format 18
2.2 Record Status 18
2.3 Snapshot and Clips Counter 18
2.4 Battery Status 18
3. NAVIGATION PANEL **19**
4. CONFIGURATION PAGE **19**
5. LIVE PAGE **20**
5.1 Live Preview 20
5.2 Record Button 20
5.3 Pause and Stop Buttons 21
5.4 Snapshot Button 21
5.5 Record Parameters Information 21
5.6 Direct Link - Live Video 21
6. RECORDED CONTENT PAGE **21**
6.1 General 21
6.2 Clip and snapshot window 22
6.3 Downloading a clip or thumbnail 22
7. SYSTEM PREFERENCE PAGE **23**
7.1 Date and Time 23
7.2 Network Settings 23
7.3 Backlight settings 24
7.4 Web Page Credentials 24
7.5 Version Info 24
TECHNICAL SPECIFICATIONS **25**
COMPLIANCE **25**
ENVIRONMENT **25**
PHYSICAL DESCRIPTION **25**
SUPPORTED INPUT, OUTPUT AND RECORDING FORMATS **27**
SUPPORTED RECORDING MODES **28**
RECOMMENDED ACCESSORIES **29**
WARRANTY **30**

INTRODUCTION

Thank you for purchasing the FOCUS FS-H60/H70 Proxy recorder.

Specifically designed for video professionals, the Focus FS-H60 / FS-H70 Proxy Recorder provides easy to integrate H.264 and proxy recordings into your everyday workflow.

FEATURES

- Small, Portable, Battery Powered Design
- Records H.264 file to a Standard SDHC card
- Record in standard .MOV/.MP4 or AVCHD file format
- FS-H60:HDMI video input with embedded audio support (2-channels)
- FS-H70:SDI video input with embedded audio support (2-channels)
- Video/Audio loop-through.
- Web Interface for live streaming, preview of recorded clips, configuration of the unit and control (PC, MAC, and iOS devices) – optional VITEC USB Wi-FI Adaptor (part number 14324) or USB to Etherent adapter needed.
- Possibility to control the unit over RS232, HTTP (API available) or via FS-Remote software (end user application available at www.vitec.com)

UNPACKING

Verify that your FOCUS FS-H70 or FS-H60 has the following items:

1. FS-H70 or FS-H60 Unit
2. Camera Mount Cradle
3. VITEC battery pack (Lithium battery)
4. DC Power Adapter with an international plug kit
5. User Manual (CD)

NOTE: The VITEC USB Wi-Fi adapter is not included in the packaging and can be purchased through VITEC.

1. PHYSICAL DESCRIPTION

1.1 FRONT VIEW - CONTROLS

POWER Button
(3-seconds hold
for unit shutdown)

REC Button
(for local record trigger)
• Short press: start/stop or resume a video recording
• Long press: pause a video recording

MODE Button (to select clip resolutions/bitrates and unit settings)
• Short press: select recording profile
• Long press: access to configuration menus

OK Button (for Snapshot / MODE selection /Status check)
• Short press: take snapshot
• Long Press: access additional status information

1.2 TOP VIEW - FS-H70 CONNECTORS

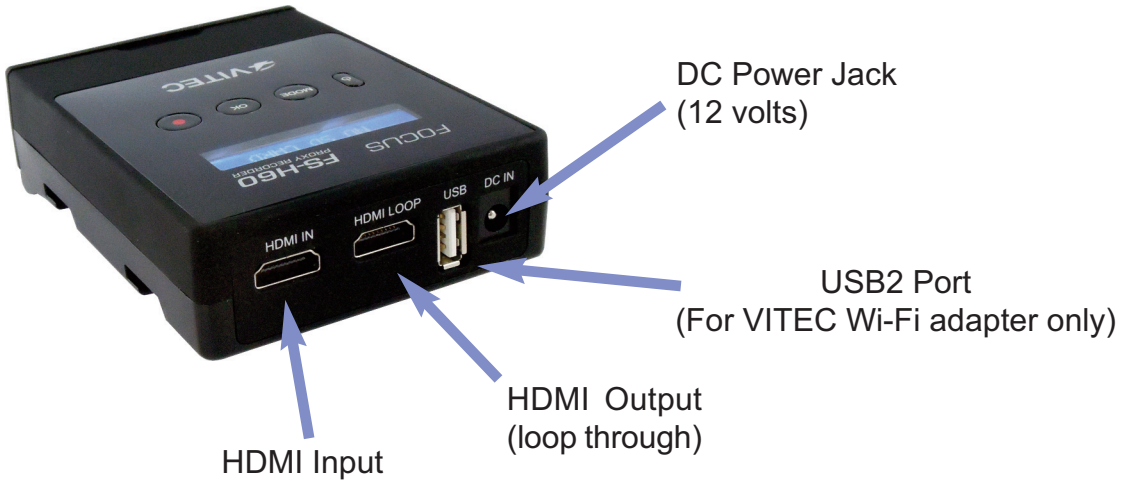
SDI Input

DC Power Jack
(12 volts)

SDI Output
(loop through)

USB2 Port
(For VITEC Wi-Fi adapter or Ethernet adapter)

1.3 TOP VIEW - FS-H60 CONNECTORS



1.4 BOTTOM VIEW – MEDIA AND BATTERY

QUICK START

1. POWERING FS-H70 / FS-H60

FS-H70/FS-H60 can be powered using the supplied battery or directly connected to its supplied DC power adapter.

Before first use in battery mode, it is recommended to fully recharge the battery:

- Open the bottom compartment door.
- Release the battery lock/release switch (up position).
- Insert the VITEC battery pack inside the unit.
- **Secure** the battery with battery lock/release switch (down position).
- Connect the supplied DC charger to the FS-H70 / FS-H60 unit.

If not fully charged, the battery charge indicator remains RED.

Once fully charged, the battery charge indicator turns GREEN.

Typical charging time is about 3-4 hours.

2. SETTING UP FOR FIRST USE

- Use a preferred solution for mounting the provided cradle onto your camcorder/device.

The cradle mounts via a 1/4"-20 thread screw hole with several mounting options available though third party manufacturers.

- Insert a SDHC card into the FS-H70 / FS-H60 media slot. Ensure that it is not write protected.
- Insert FS-H70 / FS-H60 unit inside its cradle.
- Connect to
    - FS-H70 a SDI cable from the SDI output of your video source.
    - FS-H60 a HDMI cable from the HDMI output of your video source.
- Power up the FS-H60/70 unit
    - If using the optional VITEC Wi-Fi Adapter, plug it to the USB connector **before** powering up the recorder.
- - Wait for the complete boot up. the following screen is displayed when the unit is ready:

3. FS-H70 / FS-H60 CONTROLS AND OPERATIONS

3.1 STATUS INFORMATION

By default, the Home screen displays the following information:

- Clip profile selected (recording resolution and frame rate).
- Device status:
  - • NO SIGNAL: No video input signal is detected.
  - • STOP: FS-H70 / FS-H60 has detected a video input and is ready for a recording. The recorder detects automatically the video input resolution.
  - • RECORD: record is in progress.
  - • PAUSE: record is in pause mode
  - • NO SD CARD: No SDHC is inserted.
  - • UNLOCK SD CARD: The SDHC card is write protected.
  - • NO FREE SPACE: The SDHC card is full.

3.2 ADDITIONAL STATUS INFORMATION

From the Home screen, press and HOLD OK (for 3 seconds) to enter and cycle through the Status Information Menus.

- • Battery Level:

Note: FS-H70 / FS-H60 will display a warning when the remaining battery falls to 10%.

If the battery is low and the unit must power down, to maintain clip integrity, the unit will stop and end the recording in progress (if any is taking place) before shutting down.

- • Video Input: displays the detected video input resolution and frame rate.

- • Time and Date display
- • IP address of the recorder (if using the Wi-Fi dongle or ethernet adapter)

3.3 SETTING UP THE RECORDING PROFILE

By pressing the MODE button (short press), it is possible to select the recording profile depending on the selected wrapper/file.The following encoding profiles are available (frame rate and resolution is adjusted depending on the video input signal).

MOV/MP4 modes

HD video input:

Type	Wrapper	Resolution recorded	Scanning Mode	FPS	Bit Rate	H.264 Profile	Audio	Audio Bite Rate	Type
PREMIUM	MOV MP4	1920x1080	Progressive	29.97 25 23.98	8Mb/s	High	2 ch.	160 Kb/s 48Khz	AAC-LC
		If 720p input: 1280x720	Progressive	59.94 50	8Mb/s	High	2 ch.	160 Kb/s 48Khz	AAC-LC
HIGH	MOV MP4	1280x720	Progressive	29.97 25 23.98	5Mb/s	High	2 ch.	160 Kb/s 48Khz	AAC-LC
MEDIUM	MOV MP4	960x540	Progressive	29.97 25 23.98	3Mb/s	High	2 ch.	160 Kb/s 48Khz	AAC-LC
STANDARD	MOV MP4	640x360	Progressive	29.97 25 23.98	1.5Mb/s	Baseline	2 ch.	160 Kb/s 48Khz	AAC-LC
LIGHT	MOV MP4	320x180	Progressive	29.97 25 23.98	500 Kb/s	Baseline	2 ch.	160 Kb/s 48Khz	AAC-LC

SD video input:

Type	Wrapper	Resolution recorded	Scanning Mode	FPS	Bit Rate	H.264 Profile	Audio	Audio Bite Rate	Type
STANDARD	MOV MP4	640x480 720x540	Progressive	29,97 25	1.5Mb/s	Baseline	2 ch.	160 Kb/s 48Khz	AAC-LC
LIGHT	MOV MP4	320x240 384x288	Progressive	29,97 25	500 Kb/s	Baseline	2 ch.	160 Kb/s 48Khz	AAC-LC

NOTE: Upscaling is not available on FS-H60/H70 units. It is therefore not possible to encode a clip in a larger resolution than the incoming video resolution.

AVCHD modes

In AVCHD mode, the best available profile will be used based on the input resolution:

Inputs	Wrapper	Resolution recorded	Scanning Mode	FPS	Bit Rate	H.264 Profile	Audio	Audio Bite Rate	Type
1080i	M2TS	1920x1080	**Interlaced**	29.97 25	8Mb/s	High	2 ch.	1.5Mb/s 48Khz	LPCM
720p	M2TS	1280x720	Progressive	59.94 50	8Mb/s	High	2 ch.	1.5Mb/s 48Khz	LPCM
PAL/NTSC	M2TS	720x480 720x576	Interlaced	29,97 25	3Mb/s	Main	2 ch.	1.5Mb/s 48Khz	LPCM

NOTE: AVCHD recording is not supported with 1080p inputs.

3.4 TAKE A SNAPSHOT

By pressing the OK button (short press), a full frame picture of the live input video is saved onto the SD card.

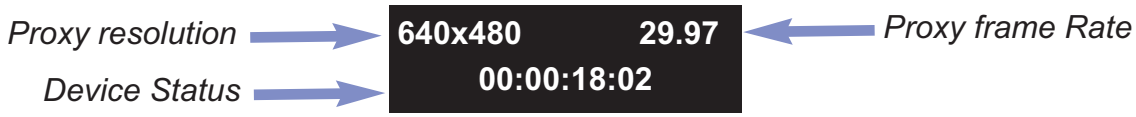
The snapshot feature is available in standby/stop mode as well as in record.

3.5 START A RECORD

To start a recording:

- Press the REC button to start manually a record.
- To stop the recording, press REC again.

While in record, the following display is shown in the main screen:



During a recording:

- Access to the menus is not available.
- OK button can be used to perform a snapshot.

3.6 PAUSE A RECORDING

To pause a recording:

- Long press the REC button to pause.
- To resume the recording, short press the REC button.

NOTE: To stop a recording while in pause mode, long press the REC button.

3.7 OFFLOAD YOUR VIDEO AND PICTURES

FS-H70 / FS-H60 recorders respect the camera standard providing an efficient way to ensure compatibilty for transfering the recorded content to a PC, Mac or mobile device.

To offload your pictures and clips:

- Remove SDHC card from FS-H70 / FS-H60 slot.
- Insert SDHC card onto your device
    - For PC/Mac users, a SDHC reader is commonly built-into the computer.
    - For iPad users, connect the optional SDHC adaptor (Apple camera connection kit or equivalent) to the device then insert the SDHC card. The video and pictures are detected and can be uploaded to the device.

- For all others, please refer to the manual of your device.

3.8 FIRST CONNECTION TO THE WEB INTERFACE

Using the optional VITEC USB Wi-Fi Adapter, it is possible to connect wirelessly to the FS-H70 / FS-H60 web interface for configuration, live streaming and playback of recorded content.

To connect:

- Switch on the Wi-Fi on your PC / Mac or mobile device.
- Search for available networks.

- Select the network called FS-H70-XXXX (or FS-H60-XXXX for FS-H60) and connect to it (no password is required).

NOTE: Only the VITEC Wi-Fi Adapter allow accessing the FS-H60 / H70 Web interface.

NOTE: From factory, the device is configured in Ad-Hoc mode and uses an internal DHCP server to provide the IP address.
If FS-H70-XXXX network cannot be found, it is likely that the unit has been configured in Infrastructure mode. To reset the network settings, access the NETWORK SETTING menu and select RESET TO DEFAULT. On next reboot, FS-H70-XXXX network will be available. Repeat steps above to connect.

- Open a web-browser and connect to the device at this address http://10.0.0.1
- The default login and password are empty. Just click onto the Login button.
- You are now connected to your recorder!

Refer to section FS-H70 / FS-H60 Web interface for more details regarding the available features and the required software depending on your client device.

CONFIGURING FS-H70 / FS-H60

To access the configuration menus, press and hold the MODE button for 3 seconds (long press).

1. FS-H70 / FS-H60 MENUS

The following menus are available:

- FILE SETTINGS
- PRE REC
- RECORD CONTROL
- TIMECODE
- TC SUPER (only for FS-H70)
- VIDEO SETTINGS (only for FS-H60)
- BACKLIGHT
    - LCD
    - BUTTONS
- DATE AND TIME
- NETWORK SETTINGS
    - MODE
    - SSID
    - CHANNEL
    - ENCRYPTION
    - IP
    - MAC
    - NET CONTROL
    - RESET TO DEFAULT
- PREVIEW
- FORMAT SD CARD
- FIRMWARE

To cycle through the menus, press the MODE button. Press OK to modify a setting or enter a menu
To exit, press and hold the MODE button for 3 seconds (long press) or press the REC button.

Use MODE to enter and circle through the menus

OK to select a menu item, modify a setting

Default setting values are indicated in bold in the description below.

1.1 FILE SETTINGS

Different file formats can be selected depending on user workflow or need:

- **MOV** (recommended if compatibility with Quicktime, Apple products is required).
- MP4

- SD ASPECT: Set the aspect ratio of the SD recorded clips
  - 4:3
  - **16:9**

NOTE:MOV and MP4 are offering similar recording profiles. Refer to previous section to find the available profiles for MOV/MPA or AVCHD clips.

1.2 PRE REC

PRE REC is a “never miss a shot” feature. When enabled, a buffer or cache of video continuously records and is added to the beginning of a clip once RECORD has started.

- 0-7secs: PRE REC buffer is activated. User can select to buffer up to 3 seconds in PREMIUM / AVCHD modes, 5 seconds in HIGH mode and 7 for teh other modes.
- **OFF**: PRE REC buffer is turned off

NOTE: In the following conditions, PRE REC can have less duration that it is set:

- The device has just started and a record starts before the PRE REC duration set.
- After changing of input format and a record starts before the PRE REC duration set.
- After stop of recording and a record starts before the PRE REC duration set.

1.3 RECORD CONTROL

It is possible to synchronize the start/stop of recording based on the following controls:

- **NORMAL**: Start/Stop recording can be triggered from the front panel REC button or via the web interface.
- AUTO (only for FS-H60): recording starts and stops automatically when an active signal is detected. Recording must be however triggered after boot up.
- AUTO+ (only for FS-H60): Similar to AUTO except that unit will automatically record by itself after boot up.
- EXTERNAL (only for FS-H70): FS-H70 receives Start and Stop record triggers from the ancillary data embedded in the SD/HD-SDI input stream. The SDI a source must support Start/Stop command from the ancillary data.
- TC BREAK (only for FS-H70): FS-H70 monitors embedded timecode in the SD/HD-SDI input stream. The recording will begin when the timecode is incrementing. When timecode stops, the recording stops.

NOTE: When in TC BREAK mode is set, before connecting FS-H70 to the camera, make sure the camera is set to REC-RUN mode and not recording.

In EXTERNAL/TC BREAK, the front panel REC buttons overrides the EXTERNAL or TC BREAK commands.

1.4 TIMECODE

TIMECODE allows the user to insert a timecode reference to the video clip in order to facilitate the editing. Several configurations are available

- OFF
- **EXT TC** (only on FS-H70): the timecode recorded comes from the RP188 timecode located in the SD/HD-SDI input stream.
- **FREE RUN** : the timecode runs continuously even if a recording is not happening. Timecode between clips are not continuous.
- REC RUN (only on FS-H60): timecode runs only when a recording is happening. Timecodes between clips are continuous.
- CLOCK SET (only on FS-H60): start timecode equals the internal time clock of the unit.

NOTE: For FREE RUN and REC RUN modes, the device stores the last TIMECODE value when turned off. When turned on, the TIMECODE continues form this last saved value. It is possible to reset the TIMECODE value by changing of TIMECODE mode.

1.5 TC SUPER (ONLY ON FS-H70)

With FS-H70, TC SUPER allows the user to configure the superimposed timecode (aka VITC) onto the recorded clip.

- MODE Setting:
  - **OFF**: TC SUPER is not activated
  - EXTERNAL: TC SUPER is activated and using the timecode from the SDI Input.
  - INTERNAL: TC SUPER is activated and using timecode from an internal counter.
- SIZE: Define TC SUPER size
  - NORMAL
  - LARGE
- POSITION: Define TC SUPER position in the PROXYvideo clip.
  - TOP
  - CENTER
  - BOTTOM

1.6 VIDEO SETTINGS (ONLY FOR FS-H60))

- OUTPUT MODE: To select between HDMI or DVI output mode (depending on the external monitor used)
  - **HDMI**
  - DVI
- CLOCK: To manually select between 60/30 or 59.94/29.97 video input framerate
  - **1/1001**: 59.94/29.97 framerate
  - 1/1000: 60/30 framerate

1.7 BACKLIGHT

FS-H70 / FS-H60 buttons and LCD backlight can be adjusted.

- LCD: Configure LCD backlight
  - OFF
  - LOW
  - MEDIUM
  - **HIGH**
- BUTTONS: Configure buttons backlight
  - **ON**
  - OFF

1.8 DATE AND TIME

Date and Time can be set up in this menu.

NOTE: A warning message is displayed at boot up when the Date/Time is reseted to default value. This message can be turned off in Date and Time menu.

1.9 NETWORK SETTINGS

To access FS-H60/H70 wirelessly, the VITEC USB Wi-Fi adapter must be used. Refer to section FS-H60/H70 Web Interface section on page 17 for details about how to access it.

This menu displays the current Wi-Fi settings and offers some configuration options.

- MODE: Display network mode (Ad-Hoc, Infrastructure or No Wi-Fi)
- ID: Display the SSID address of Wi-Fi network
  - This value can be modified while in AdHoc mode using the web interface

- CHANNEL: Display the Wi-Fi channel currently used by the device

In AdHoc mode, if the user experiences issues connecting to the device, it is recommended to switch to another Wi-Fi channel using this setting.

- ENCRYPTION: Display if the Wi-Fi network is encrypted
- IP: Display the IP address of the FS-H50 device
- MAC: Display the MAC address of the device
- NET CONTROL: It is possible to enable/disable the record and snapshot control via the web interface using this parameter
- RESET TO DEFAULT: If the Wi-Fi setup is incorrect and access via the web page is impossible, it is possible to reset the Wi-Fi settings to factory default using this setting

Wi-Fi default settings are defined as:

MODE: Ad-Hoc
SSID: FS-H60_xxxx or FS-H70_xxxx
ENCRYPTION: None
IP: 10.0.0.1

To access FS-H60/H70 over wired LAN connection, an USB to Ethernet adapter must be used (refer to section Technical Specifications for compatible models). Using such adapter the menu allows to display the current Ethernet settings and changing the IP mode: .

- RESET to STATIC: To configure the IP address in STATIC mode. By default the IP address is 10.0.0.1.
- RESET to DHCP: To configure the IP address in DHCP mode.

1.10 PREVIEW

This menu is only active if the VITEC USB Wi-FI Adapter has been plugged in prior starting up the unit.

With the optional VITEC USB Wi-FI Adapter, it is possible to preview the live video input remotely while in record or not.

Three modes are available:

- **HLS**: HTTP Live Streaming is specifically designed to playback on iOS device such as iPhone/iPad/iPod but also Mac computer. No plugin is required for those platforms

Using Windows based platform, VLC plugin must be installed

HLS technology is not optimized for low latency streaming. Latency can be up to 10 seconds

To optimize latency, it is recommended to have only one client at time

- RTSP/U: RTSP with RTP unicast streaming is not natively compatible with iOS devices.

  On Mac and PC, VLC plugin must be installed.

  Latency is optimum in this configuration. **Only one client is allowed.**

- RTSP/M: RTSP with RTP muticast streaming is similar to RSTP Unicast except that it allows a multiple user view experience without slowing down FS-H70 / FS-H60 device.

If your network allows multicast, it is recommended to select this mode.

1.11 FORMAT SD CARD

To format the SD HC card inserted (FAT32 format).

This process also creates the directory structure.

1.12 FIRMWARE

Displays the current firmware version loaded into the device.

If a software upgrade is needed, this menu must be used.

To upgrade the unit firmware:

- Download the FS-Hxx.pak file on VITEC website (www.vitec.com).
- Rename the file either in
  - FS-H70.pak for FS-H70 recorder
  - FS-H60.pak for FS-H60 recorder
- Format a SD HC card using the recorder unit and load the FS-H70.pak or FS-H60.pak at teh root folder
- Boot the FS-H70 / FS-H60 device
  - For FS-H60, connnect an active HDMI input signal to the HDMI In connector..
- Access the FIRMWARE menu and press the OK button to upgrade
- Wait for the process to complete.

Before proceeding: **ENSURE THE UNIT IS POWERED BY THE DC POWER SUPPLY.**
To prevent any power loss, inserting a charged battery is also recommended.
NOTE: In case of failure during the upgrade process, the failsafe procedure must be used:

- Press REC and MODE buttons simultaneously.
- Power ON the unit.
- Wait for the FS-Hxx WELCOME screen, then release the REC and MODE buttons.
- Insert the SDHC card with the FS-Hxx.pak firmware then press OK.

FS-H70 / FS-H60 WEB INTERFACE

FS-H70 / FS-H60 web interface provides an easy way to manage and control your FS-H70 / FS-H60 product over a local network through a standard web browser. More details are provided in the following sections.

1. GETTING STARTED

1.1 CONFIGURATION REQUIREMENT

For an optimized experience with the live streaming and Video On Demand (VoD) features, ensure that your system has the following setup:

- iOS devices (iPad/iPhone/iPod): No specific software has to be installed.

Quick Time can decode HTTP Live streaming (HLS) natively.

Note: RTSP is not natively supported by iOS devices. Use a 3rd party software for RTSP decoding

- Windows systems: VLC v2.0.5 must be installed.

VLC v2.0.5 can be found at this address: http://download.videolan.org/pub/videolan/vlc/2.0.5/

- Mac systems: VLC 1.0.5 plug-in or QuickTime plug-in must be installed.

Note: The VLC 1.0.5 plug-in for MAC OS X is not required but recommended for VoD of files longer than 20 minutes as native Quicktime player plug-in doesn't support Progressive Download.

Using VLC, the start of clip playback will be improved.

1.2 FIRST CONNECTION TO FS-H70 / FS-H60 WEB INTERFACE

- Switch on the Wi-Fi on your PC / Mac or mobile device.
- Search for available networks.
- Select the network called FS-H70-XXXX or FS-H60-XXXX to connect to it.

NOTE:

From factory, the device is configured in Ad-Hoc mode and uses an internal DHCP server to provide the IP address.

The last four digits/symbols of the network name (FS-H70-XXXX/FS-H60-XXXX) conform to the last four digits of the dongle's MAC address of the Wi-FI Adapter.

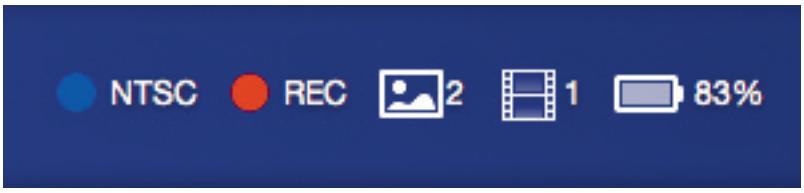
- Open a web-browser and connect to the device at this address http://10.0.0.1
- The default login and password are empty. Just click onto the Login button.

NOTE:

If FS-H70-XXXX (or FS-H60-XXXX) network cannot be found, it is likely that the unit has been configured in Infrastructure mode.

To reset the network settings, access the NETWORK SETTING menu and select RESET TO DEFAULT. On next reboot, FS-H70-XXXX (or FS-H60-XXXX) network will be available. Repeat steps above to connect.

2. STATUS HEADER



2.1 INPUT FORMAT

If a signal is detected, the left dot is turning BLUE. If not, it remains GREY.

Next to the dot, the input resolution detected is displayed.

2.2 RECORD STATUS

- RED - The device is in recording mode.
- RED bars - Record is in pause mode
- GREY - No Recording in progress.

Note: As long as a video input is detected, live preview and snapshots features are available at any time (while in record or not).

2.3 SNAPSHOT AND CLIPS COUNTER

Counters next to the picture and clip logo shows the number of pictures and clips which have saved onto the SDHC card.

2.4 BATTERY STATUS

The battery status provides five levels of battery charge from 0 to 100%.

When the logo turns Red, the remaining battery power is less than 10%. It is recommended to recharge or swap the battery.

3. NAVIGATION PANEL

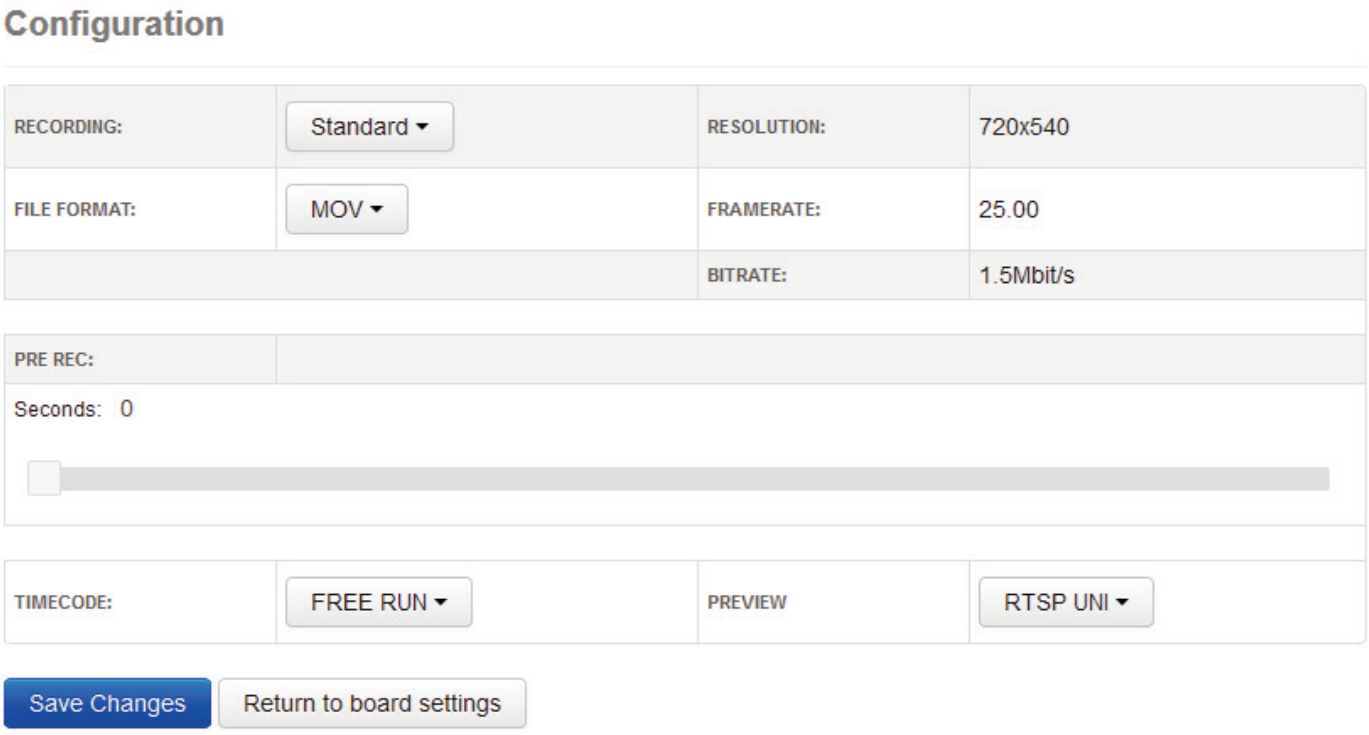
Live Page can be used to preview the live video input and start/stop a recording or take snapshots remotely.

Preview Page can used to review pre-recorded clips/snapshot and to download them.

Control Page can be used to configure the unit remotely.

System Page can be used to set the system parameters of the device: Date and Time, Network settings, Backlight and Web Login/Password.

4. CONFIGURATION PAGE

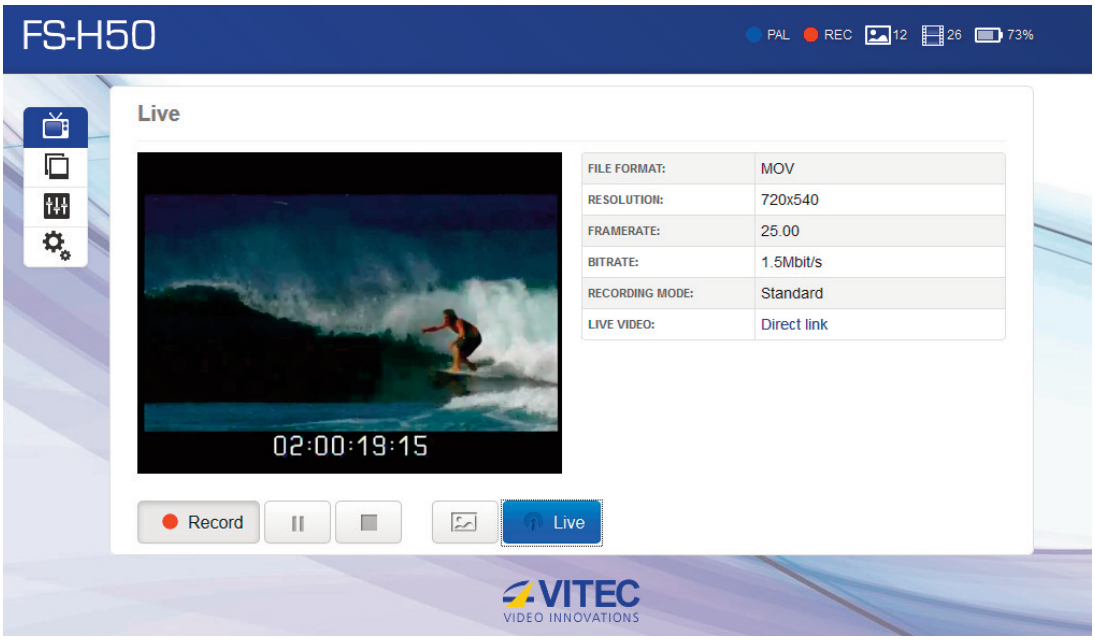


The configuration sets the FS-H70 / FS-H60 main features:

- For RECORDING setting, refer to the Quick start section on page 4.
- For FILE FORMAT, PRE REC, TIMECODE, PREVIEW BUTTONS, refer to the FS-H70 / FS-H60 Menus section on Page 10.

NOTE: “Return to board settings” resets the settings already configured on the FS-H70 / FS-H60 unit.

5. LIVE PAGE



5.1 LIVE PREVIEW

The Live, Record and Snapshot features (and button activity) are available as long as a video input signal is detected.

The video input status can be checked in the status header of the web page.

- Ensure the required software is installed onto your platform (refer to section “1.1 Configuration requirement” page 16).
- Press the Live button.

.

NOTE: By default the device uses HLS (Http Live Streaming) for Live preview. See Configuration page 14 “Preview” to get to know how to select and use RTSP modes.

5.2 RECORD BUTTON

- Pressing the record button, FS-H70 / FS-H60 starts a recording. The button’s icon lights RED.
- Press the button again to stop recording.

NOTE: The record button is not available from the web interface if the NETWORK SETTINGS/REC CONTROL parameter is set to OFF. This parameter forbids unattended use of the unit remotely (start/stop of recording).

5.3 PAUSE AND STOP BUTTONS

- Pressing the pause/stop button, the recorder wil respectively pause/stop the recording in progress.
- In pause mode, press the pause button to resume the recording.

NOTE: The pause/stop buttons are not available from the web interface if the NETWORK SETTINGS/REC CONTROL parameter is set to OFF.

5.4 SNAPSHOT BUTTON

Snapshot is available at any moment (FS-H70 / FS-H60 can be in record or not).
In Premium mode recording, this feature is not available.

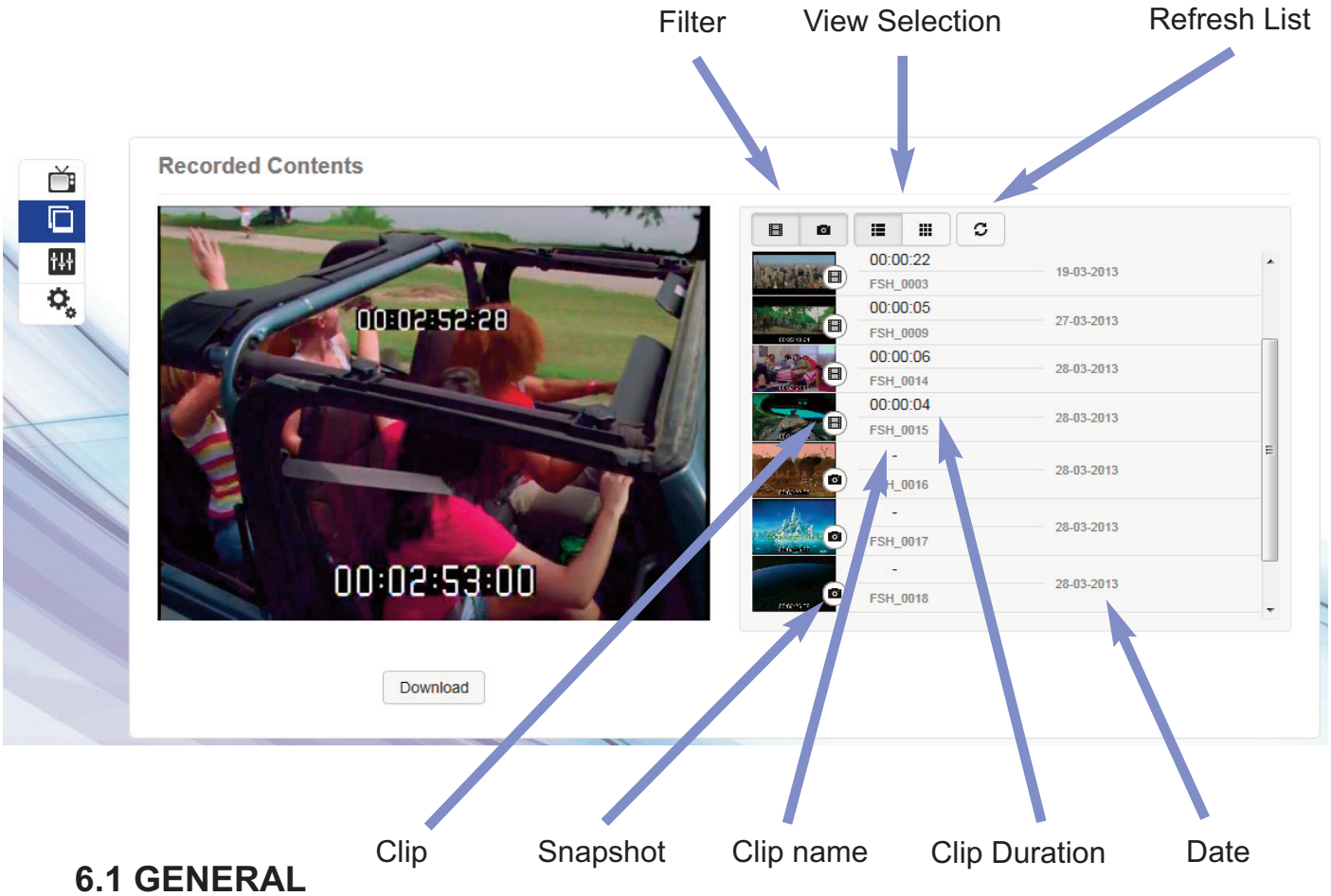
5.5 RECORD PARAMETERS INFORMATION

The recording settings chosen are displayed in this window.

5.6 DIRECT LINK - LIVE VIDEO

A link of the live preview stream is provided in this section. To play the live stream from an external video player, copy the link and paste it in your favorite player.
NOTE: Once live streaming has been started using an external player, it is no longer necessary to keep the web interface page opened.

6. RECORDED CONTENT PAGE



6.1 GENERAL

Refer to section 1.1 CONFIGURATION REQUIREMENT (page 16) to ensure plugins are correctly installed for your device.
In RECORD mode, the recorded content is not available for playback or download.

6.2 CLIP AND SNAPSHOT WINDOW

NOTE: Snapshots are sorted prior to the recorded file when taken during the recording. Snapshots without a date in the 3rd column are those taken when the recording was stopped.

6.3 DOWNLOADING A CLIP OR THUMBNAIL

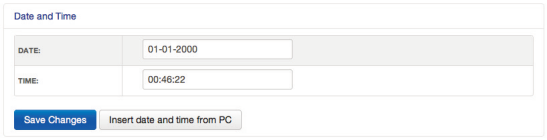
- Select a clip
- Press the Download button
- The browser opens the selected clip in new window.
- Right click and select “Download Linked File As…” to get this clip downloaded onto your PC.
- The download feature is only available when the FS-H60/H70 is not recording. Downloading process automatically stops when the device starts recording.

7. SYSTEM PREFERENCE PAGE

7.1 DATE AND TIME

- Date can be manually set using format DD-MM-YYYY

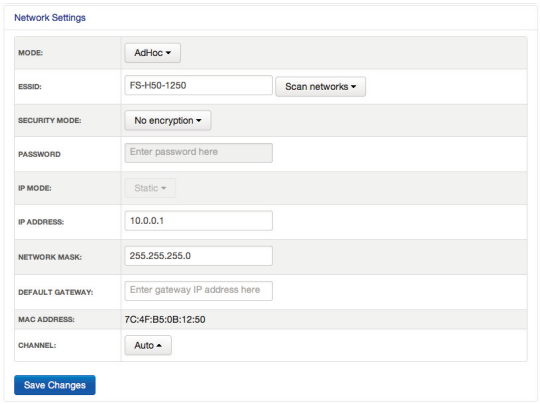
-Time can be manually set using format HH:MM:SS



- Date and Time can be automatically updated using the “Insert Date and Time from PC” button

NOTE: Without battery inserted, the date and time is saved for about a week.

7.2 NETWORK SETTINGS



Wi-Fi settings can be configured to match your setup.

- MODE:

•Ad-Hoc: In this mode, device runs DHCP server and give IP address to clients in range of 10.0.0.240-10.0.0.250

•Infrastructure: In this mode, device connects to an access point and get its IP address by DHCP or follow the settings specified by the user (IP Address, Mask, Gateway)

- ESSID:

•By default ESSID (Network name) consists of FS-H70 / FS-H60 and last four digits of Wi-Fi dongle’s MAC address.

- It is possible to enter a new network name manually.
- Scan Networks button can locate surrounding available access point/networks available in Infrastructure mode.

- Security Mode:

•No Encryption

•WEP/WPA/WPA2 : to be selected if the infrastructure network is protected.

- IP Mode: Available in Infrastructure mode

•DHCP : IP address will be provided by the router

•Static : IP address must be entered manually.

- IP Address : to be entered if IP Mode selected is Static,
- Network Mask: to be entered if IP Mode selected is Static,
- Default Gateway: to be entered if IP Mode selected is Static,

- MAC Address: Provide the MAC address of the Wi-Fi dongle Adapter
- Channel: In case of poor connection in AdHoc, it is possible to change the Wi-FI channel in use.

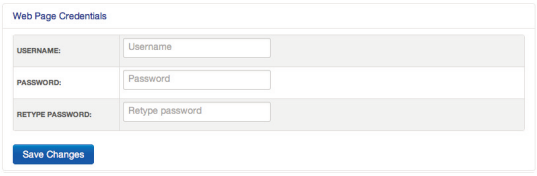
NOTE: If the Wi-Fi configuration set is incorrect and access via the web page is impossible, it is possible to reset the Wi-Fi settings to factory default using the setting RESET TO DEFAULT located in FS-H70 / FS-H60 menus (NETWORK SETTINGS).

7.3 BACKLIGHT SETTINGS

Buttons and LCD backlight can be adjusted using this section.

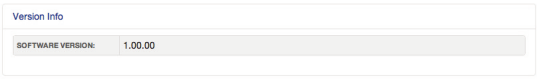
7.4 WEB PAGE CREDENTIALS

Web Page requires username and password to connect. By default, Username and password are left empty (just click the log in button to access the web page).



7.5 VERSION INFO

Firmware version can be verified in this section.
Provide this reference in your support request.



TECHNICAL SPECIFICATIONS

COMPLIANCE

- CE
- FCC Part 15 ,Class A
- C-Tick
- RoHS

ENVIRONMENT

- Operating Temperature: +32 to 104°F (0 to 40°C)
- Storage Temperature: -4 to 140°F (-20 to 60°C)
- Humidity: 10-90% (relative humidity)

CAUTION: FS-H70 / FS-H60 can be used in hot environments. The unit enclosure can be hot to the touch during operation in high temperatures.

PHYSICAL DESCRIPTION

CONNECTIONS

- Video input:
- FS-H70: BNC (x 1), 0.8Vp-p conforms to SMPTE 259M/292M
- FS-H60: HDMI1.3 (x1) Type A, 19-pins

-Video output (loop through):
- FS-H70: BNC (x 1), 0.8Vp-p conforms to SMPTE 259M/292M
- FS-H60: HDMI1.3 (x1) Type A, 19-pins

- Audio Input:
- FS-H70: SDI embedded audio (2 channels recording)
- FS-H60: HDMI embedded audio (2 channels recording)

- Computer: USB 2.0 Type A (x 1) for VITEC USB Wi-Fi adapter **only**.
- DC Power Input: 2-pin DC Jack (x 1). 5-16V DC

CONTROLS

- Buttons – Mechanicals with backlight LED for: Power, Mode, OK, Record

MEDIA SLOT

- SDHC Card (compatible with card up to 32GB, Speed: Class 8 and above recommended).

NOTE: FS-H60/H70 is not compatible with SDXC cards.

STATUS DISPLAY

- 16x2 lines character monochrome LCD Display.

MOUNTING KIT

- Cradle with standard 1/4“-20 screw hole
- Easy insertion/removal of the FS-H70/H60 unit from the cradle

POWER

- **External DC Input:** 12V DC
- **Battery powered:** VITEC Battery Pack P/N 12286 (3.7V/4000mAh)
- **Power Consumption**
  - FS-H70 – 3.4W (4.3W with optional VITEC USB Wi-Fi adapter only)
  - FS-H60 - 2W (2.9W with optional VITEC USB Wi-Fi adapter only)
- **Autonomy –**
  - FS-H70 – 5 Hours (3 Hours with optional VITEC USB Wi-Fi adapter).
  - FS-H60 - 8 Hours (5 Hours with optional VITEC USB Wi-Fi adapter).

DIMENSIONS AND WEIGHT

- **Dimensions:** LxWxH – 135x84x34mm (5.3x3.3x1.3in) – without cradle
- **Weight:**
  - Unit (without battery):
    - FS-H60 - 136grams/0.29lbs.
    - FS-H70 - 210grams/0.46lbs
  - Battery: 110 grams/0.25 lbs

SUPPORTED INPUT, OUTPUT AND RECORDING FORMATS

FS-H70 SUPPORTED INPUT FORMATS

- 1080 59.94i/50i/30p/29.97p/25p/24p/23.98p
- 720 60p/59.94p/50p
- 480i59.94, 576 50i
- SMPTE RP-188 timecode in the SD/HD-SDI stream

FS-H70 SUPPORTED OUTPUT FORMATS

- Loop Through - All SD/HD-SDI input resolutions are supported
- Audio and ancillary data path through from SD/HD-SDI-in

FS-H60 SUPPORTED INPUT FORMATS

- 1080 60p/59.94p/50p
- 1080 59.94i/50i/30p/29.97p/25p/24p/23.98p
- 720 60p/59.94p/50p
- 480i59.94, 576 50i (not in DVI mode)

FS-H60 SUPPORTED OUTPUT FORMATS

- Loop Through - All HDMI input resolutions are supported
- Audio and ancillary data path through from HDMI in

SUPPORTED RECORDING MODES

MOV/MP4 modes

If HD video input:

Type	Wrapper	Resolution recorded	Scanning Mode	FPS	Bit Rate	H.264 Profile	Audio	Audio Bite Rate	Type
PREMIUM	MOV MP4	1920x1080	Progressive	29.97 25 23.98	8Mb/s	High	2 ch.	160 Kb/s 48Khz	AAC-LC
		If 720p input: 1280x720	Progressive	59.94 50	8Mb/s	High	2 ch.	160 Kb/s 48Khz	AAC-LC
HIGH	MOV MP4	1280x720	Progressive	29.97 25 23.98	5Mb/s	High	2 ch.	160 Kb/s 48Khz	AAC-LC
MEDIUM	MOV MP4	960x540	Progressive	29.97 25 23.98	3Mb/s	High	2 ch.	160 Kb/s 48Khz	AAC-LC
STANDARD	MOV MP4	640x360	Progressive	29.97 25 23.98	1.5Mb/s	Baseline	2 ch.	160 Kb/s 48Khz	AAC-LC
LIGHT	MOV MP4	320x180	Progressive	29.97 25 23.98	500 Kb/s	Baseline	2 ch.	160 Kb/s 48Khz	AAC-LC

If SD video input:

Type	Wrapper	Resolution recorded	Scanning Mode	FPS	Bit Rate	H.264 Profile	Audio	Audio Bite Rate	Type
STANDARD	MOV MP4	640x480 720x540	Progressive	29,97 25	1.5Mb/s	Baseline	2 ch.	160 Kb/s 48Khz	AAC-LC
LIGHT	MOV MP4	320x240 384x288	Progressive	29,97 25	500 Kb/s	Baseline	2 ch.	160 Kb/s 48Khz	AAC-LC

NOTE: Upscaling is not available on FS-H60/H70 units. It is therefore not possible to encode a clip in a larger resolution than the incoming video resolution.(ie record a PREMIUM clip from a SD .input signal).

AVCHD modes In AVCHD, the best available profile will be used based on the input resolution.

Inputs	Wrapper	Resolution recorded	Scanning Mode	FPS	Bit Rate	H.264 Profile	Audio	Audio Bite Rate	Type
1080i	M2TS	1920x1080	Interlaced	29.97 25	8Mb/s	High	2 ch.	1.5Mb/s 48Khz	LPCM
720p	M2TS	1280x720	Progressive	59.94 50	8Mb/s	High	2 ch.	1.5Mb/s 48Khz	LPCM
PAL/NTSC	M2TS	720x480 720x576	Interlaced	29,97 25	3Mb/s	Main	2 ch.	1.5Mb/s 48Khz	LPCM

STREAMING SPECIFICATION

- Codec H.264
- Resolution : 480x360
- Framerate: 30 or 25 frame per second
- Scanning mode: Progressive
- Stream type: HLS, RTSP with RTP multicast or unicast
- Audio: AAC-LC stereo at 64kbps

RECOMMENDED ACCESSORIES

Wi-Fi and LAN adapters are available for:
- Remote access to FS-H60/70 clips
- Live and recorded stream playback
- Unit configuration
- Unit control (Record and Snapshot)

COMPATIBLE USB WI-FI ADAPTER

- VITEC USB Wi-Fi adapter (14324): available through VITEC distributors.

COMPATIBLE USB TO LAN ADAPTER

- Sabrent USB2.0 to Network 10/100Mbps Ethernet Adapter (black): NT-USBC
- Apple USB2.0 Ethernet Adapter (White)

NOTE: Only qualified adapters are compatible with FS-H60/70 recorder.

WARRANTY

VITEC LIMITED HARDWARE WARRANTY TERMS

Subject to the terms and conditions specified below your VITEC product (the "Product") is warranted against defects in material and workmanship (the "Warranty") for a period of 12 (twelve) months following the Delivery Date (the "Warranty Period"). The Warranty provided to you hereunder supersedes any warranty which may be provided to you by the original manufacturer of the Product.

Vitec Multimedia will repair or replace (at its option) any defective part during the Warranty Period, provided that (i) the Warranty remain in force. Your dated sales receipt or invoice shall be considered as the delivery date of the Product form VITEC's premises to your designated address (the "Delivery Date"); (ii) your Product unit carries a serial number on its rear panel; (iii) you received from Vitec Customer Service department a Return Materials Authorization (RMA) number. No Product unit will be accepted for repair without RMA number; and (iv) the entire Product unit is returned to the company by prepaid shipping in VITEC's original packaging.

Vitec will not be responsible for (i) any damages resulting from the use, maintenance or installation of any Product; or (ii) for the incorporation of any spare or replacement parts not approved by the company.

Without limiting the generality of the foregoing, The company reserves the right to refuse to provide any services under the Warranty for any Product that, in the company opinion, has been subjected to any abnormal electrical, mechanical, or environmental abuse, or shows signs of modification by an unauthorized person or company. Call your local distributor or reseller for out-of-warranty repair charge estimates prior to returning a product.

VITEC
VIDEO INNOVATIONS